

HOWARD'S

PATENT VENTILATOR

A Scientific Invention of Cheap Construction,

Applicable at Small Cost to all

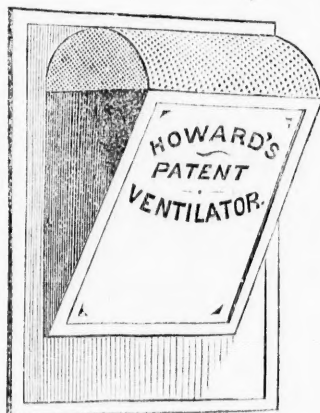
Buildings, Railroad Cars, Passenger Vessels, &c.

AND

A PERFECT MEANS FOR THE

INTRODUCTION OF PURE FRESH AIR,

WITHOUT DRAUGHT.



ST. JOHNS :

PRINTED AT THE "NEWS" BOOK AND JOB PRINTING OFFICE.
1869.

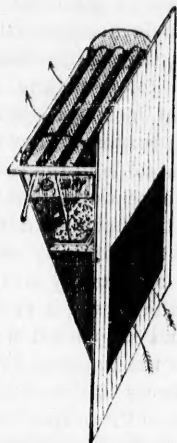
Patented in the United States under the name of the "LESPERANCE VENTILATOR."

Orders for the **HOWARD PATENT VENTILATOR**, to be accompanied in all cases with measurement of the place in which it is required to be inserted, should be addressed

JOHN CONVERSE,

Drawer 54, P. O., Montreal.

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HOWARD'S PATENT VENTILATOR.

PART FIRST.

EXPLANATIONS.

GENERAL REMARKS.

The subject of Ventilation is divided by writers on Hygiene into natural and artificial. By the latter term is meant some mechanical force or contrivance such as heat, steam, water, horse or man power to produce ventilation or air, independent of nature. The Ventilator which bears my name is not a substitute for any of these means, but an artificial or mechanical contrivance to make the best use of the air provided us by nature.

It is hardly necessary to point out the necessity that exists for a constant supply of pure fresh air into Hospitals, Prisons, Schools, Barracks, and all public buildings and private houses, more particularly in our cold Canadian winters, when we are obliged not only to resort to artificial heat, but of necessity to use every means to exclude the cold atmospheric air. Who, in going from the fresh air into one of our Public

Establishments in the winter time, has not immediately found a warm apartment, filled with a poisonous atmosphere? What is true of our public buildings is equally true with regard to our private residences. Every medical man has, in his practice, experienced the fearful results of the want of pure air, which he has no means of admitting to his suffering patient but by opening a pane of glass and allowing such a rush of cold, damp air into the room, as to do more harm than good. If any one requires more fresh air than another, it is the poor suffering *consumptive*; yet from the want of a proper means for admitting pure air into the room, his sufferings are increased and his days shortened, housed up as he is in close rooms during our long winters. How many of the deaths recorded every day, are not easily traceable to the result of colds taken whilst sitting in a draught? Experience proves that more colds are taken in this way than in any other, and this holds good in summer as well as in winter. Every one has experienced the difficulty of admitting pure air into his house in the summer time, particularly in Towns and Cities. We open our doors and windows, but the air which enters is loaded with all sorts of impurities, impure gases and suspended organic matter. The following extract from the Report to the Imperial authorities, made by Dr. Muir, Inspector-General to the forces stationed in Canada, will prove how necessary to the public health is the proper ventilation of all buildings:

"Dr. Muir reports that great improvement was made in the year 1866 in the housing of Troops in Canada. An excellent general hospital at Montreal has been substituted for the four line Regimental Hospitals formerly in use. Not only has a large saving to the public been effected by the change, but the sick are more comfortably accommodated. Whilst the Troops everywhere are well housed, there is great difficulty in keeping the air in their rooms in a due state of purity during the winter. The ill effects of impure air are not very perceptible in private houses, where the inmates are few, but where 20 or 40 men are put in a single room, where they take their meals, as well as sleep for six or seven months consecutively, there can scarcely be a question that the seeds of grave disease, necessarily having connection between cause and effect, may not be at once traced. *Dr. Muir cannot help thinking that the large number of men treated and invalided for chest diseases during the five years he has been in this command, bear a close relationship to this impure state of barrack air.*"

Besides Ventilators for the admission of *pure air*, all buildings both public and private should be well supplied with means for the escape of the *impure air* generated therein. The escape tube should be as high up as possible; chimnies, stove and pipe holes perform this duty in a manner, in private houses, but they do not act effectually, from the fact that the draught is formed close to the floor, instead of the ceiling, thereby exposing the occupants to draughts and chills. Heat has a powerful effect in producing draughts—it draws the surrounding air towards itself. Con-

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sequently a capital plan for the expulsion of impure air in private houses heated by stoves would be, to have the stove pipe surrounded by a tin pipe of sufficient size to allow of a vacancy of one inch between the two pipes; the tin pipe should fill up the hole in the chimney and should come down a few inches below the elbow of the stovepipe nearest the stove, so that whilst the stovepipe acts as a conductor for the hot smoke, the tin pipe will be a conductor for the foul air.

Ordinary persons can hardly conceive the *amount of air necessary for health*. Mr. Parkes, the highest authority on the subject of Hygiene, lays down as a rule that 2000 cubic feet of fresh air per hour per head for persons in health, and from 3 to 4000 cubic feet for same time, for each sick person are required. In a table published by him he states that

"The amount of fresh air to be supplied per head per hour in temperate climates under the following circumstances is:

In Barracks	1,059	cubic feet by Day and 2,118 by Night
In Workshops	2,118	" " "
In Prisons	2,118	" " by Day and Night.
In Hospitals	2,825	" " "
" "	4,236	" " during hours of Dressings.
" "	5,650	" " during Epidemics.
In Schools	1,059	" "

Speaking of the impurities from our breath and the exhalations from our skin, &c., &c., he makes the following remarks:

"An adult man in ordinary works gives off in 24 hours from 12 to 16 cubic feet of carbonic acid gas and also emits an indeterminable quantity of the same gas by the skin. In Hospitals, in addition to being vitiated by respiration the air of the sick rooms is also contaminated by the abundant exhalations from the bodies and by the effluvia from discharged excretions."

"That the breathing of air rendered impure from any cause is hurtful and that the highest degree of health is only possible where to other favorable conditions is added that of a proper supply of pure air, might be inferred from physiological evidence of the paramount importance of proper aeration of the blood. Experience strengthens this inference, statistical inquiries on mortality prove beyond a doubt, that of the causes of death which usually are in action, *impurity of the air* is the most important. Indeed observations confirm this. The air must be removed so immediately that there shall be no risk of a person breathing again his own expired air or that of another person. In hospitals, especially, it is desirable that there shall be no chance of the air of one sick person passing over the bed of another; therefore the movement of the air should be rather vertical than horizontal, and as the expired air and all the exhalations from the body or bed clothes at first pass upwards from their levity, it is desirable that they should be discharged above and not drawn down again, past the patient."

Speaking of Ventilation, Mr. Parkes says:

"In order to keep air in its necessary purity it must be continually changing.

Whatever way the air is supplied, certain conditions must be laid down; the air which enters must itself be pure, its movements must be *imperceptible*, otherwise it will cause the sensation of draught and will chill. It must be well diffused all through the room so that in every part movement shall be going on, in other words the distribution must be perfect. A moving body of air sets in motion all air in its vicinity, it drives air before it and at the same causes a partial *vacuum* on either side of its own path, towards which all air in the vicinity flows at angles more or less approaching right angles."

Mr. Parkes gives a description of the many modes invented for the transmission of pure air into buildings, but does not seem to have much confidence in any of them. Some of them are clumsy and useless and many very expensive. Amongst the many, are drilling holes in the panes of glass—having two panes, the outside open in the bottom, the inside in the top, the air to pass between the two panes; tubes passing into the room and perforated; air passing round hot steam pipes; pieces of board constructed in the upper part of the window to direct the air inwards and upwards; fine wire screens, &c., &c.

ADVANTAGES OF THE NEW INVENTION.

I shall now consider the advantages of this Ventilator. I propose that it shall always and at all times admit pure air; that the air shall be equally diffused all through the rooms, in fact that the distribution shall be PERFECT; that its movements shall be imperceptible, consequently without draught; that the air shall be rendered warm in its passage through the Ventilator; that if there be any impure gas in the atmosphere, such as sulphuretted hydrogen it shall be absorbed in the machine before being admitted into the room; that no suspended organic matter shall be admitted with the air; and that if the air is too damp (that is, saturated with watery vapors), part of the water shall be absorbed by a very simple change in the Ventilator. Authors on Hygiene lay it down that for a healthy state of the atmosphere, watery vapor should form 65 to 75 per cent of it. Persons affected with any chronic bronchial disease, such as Asthma, require even a greater amount of watery vapour; indeed, there is not much danger of the air being too damp when admitted into our hot buildings during our cold dry winters, and except in the spring and fall of the year, no precaution need be taken against it. A very simple way of testing if there is too much watery vapour in the air is to place a polished mirror or piece of polished steel in the room, and if damp is found deposited on the mirror or steel, it may be concluded that the air is too damp.

ACTION.

As the air in the Ventilator has to pass through three plates of perforated tin, a covering of sponge and a box filled with charcoal, it is impossible that any suspended organic matter can pass through it, and, when necessary, a portion of the damp in the air is absorbed and retained in the sponge in the first chamber, and all impure gas is absorbed by the charcoal in the second chamber. The air is rendered warm, first by the amount of friction it has to undergo, and secondly by the chambers through which it passes being warmed by the heat of the room.

DESCRIPTION AND EFFECT.

From the formation of the Ventilator, the air passes upwards and inwards, *vertically* and not *horizontally*; therefore there can be no sensible draught, and as it passes through three plates of perforated tin, it is divided into numerous and continuous streams and is discharged into the room like water from a fine rose on a watering pot. It may be objected that my theory, although good when there is an abundance of wind, would not prove equally so when there is little or no wind stirring; but when the wind is said to be still, it travels at the rate of one mile and one half per hour. Even then there is a stream of pure air admitted, being drawn in by the heat of the chamber or house to be ventilated, on the principle that heat draws the current of air towards it. This fact every one knows by observing in winter, when he opens the small pane of glass (called a Ventilator) in his window. It is the cold air that rushes in and not the warm air that passes out. Of course, if a double current is established, the hot air will rush out, as it is displaced by the cold. Ventilation, however, should be on every side of a house, but when this is not feasible, there will always be a current of air through this Ventilator.

TESTS.

As a proof that no impure odor is admitted into a room in which is placed the Ventilator, I made a test by burning a piece of old rag, saturated with coal oil, at the mouth of the Ventilator, the wind blowing directly on it, and no smell of the oil came through into the room. There was no occasion to test for suspended organic matter, for from the construction of the Ventilator, none can pass through it. That the aqueous

vapour can be corrected, I proved by holding a piece of looking glass over the top of the box, (heavy rain having fallen all night and the wind blowing direct on the mouth of the Ventilator), when it showed not the slightest sign of damp, though on removing the sponge, damp immediately appeared. To ascertain that the currents of air were equally divided throughout the room, I applied two tests—1st, I burned a piece of cotton velvet over the Ventilator, and in a few minutes the smoke was in every part of the room. I then suspended a piece of sponge wet with toilet vinegar over the ventilator, and in two minutes the whole room smelt of the odor. I had no instrument for measuring the quantity of air admitted in a given time, but have trusted to my senses and calculations. The Ventilator at its opening into the room is 13 x 11 inches, distance from opening to the mouth of the escape pipe, (which is 12 x 12 inches), 14 feet; the thermometer in the room stands at 66°; in the open air it stands at 26°; difference 40 degrees, consequently, according to the principles laid down in Parkes' table of measurement, the number of cubic feet of fresh air per hour admitted is about 26,400 feet—sufficient for twelve persons in health, or six in the wards of an hospital. From the foregoing, it will be understood that the greater the heat of the house and the cooler the atmospheric air, the greater will be the amount of air admitted. Again it may be asked, what if the temperature be the same outside and inside the house? I answer that even then as the outside air is the heaviest, it forces its way against the lighter body and enters the house; but this state of the atmosphere rarely occurs even in our hot summer nights, the air in the house being rendered warm and impure by the persons in it. As a test that the Ventilator was warmed by the heat of the room, and that the air was warmed by passing through the Ventilator, I placed a *thermometer* in the open air, *one* on the wall of the room, *another* in the front part of the Ventilator in the room, and a *fourth* on the pane of glass next to the Ventilator, whilst a *fifth* was hung 4 inches over the box of the Ventilator. The aspect of the window of the room is due west, a snow storm and Northwest wind gently swaying the thermometer over the Ventilator. The thermometers read as follows:

	11 O'CLOCK, A. M.	12 O'CLOCK, A. M.	6 O'CLOCK, P. M.
Open air,	36°	36°	36°
Room	72°	66°	66°
Front of Ventilator,	54°	52°	52°
Pane of Glass,	42°	40°	40°
Over box of Ventilator,	68°	65°	64°

The room being warmed by a dumb stove, I turned off the heat at 12 o'clock; snow storm continued with very little wind.

From the above reading of the thermometer, it will be seen that the difference between the heat of the room and the fresh air admitted was an average of three degrees, the difference between the air before it

entered the Ventilator and escaped from it was 30 degrees, and the average difference between the pane of glass and the box of the Ventilator was 12 degrees. A more convincing proof that the air is warmed in its passage through the Ventilator could hardly be given.

MANNER OF USING THE VENTILATOR.

In every private house there should be one large or two small Ventilators in every large room, particularly in bed-rooms. In Hospitals, Barracks, Schools, Prisons, &c., there should be one large or two small ones, for every twelve persons in the day time, and in the sleeping rooms, one for every eight persons sleeping therein. In Prisons, one large Ventilator should be in each cell. The Ventilator should take the place of one of the highest panes of glass in the window, in houses already built; but when building, provision may be made to have it put in any convenient place, care being taken that no obstruction is allowed to prevent the easy withdrawal of the box of the Ventilator, when necessary to do so. The box of the Ventilator will of course face the inside of the room. Where double windows are used the funnel takes the place of the corresponding pane of glass in which the Ventilator is placed, and the funnel drawn out to cover the mouth of the Ventilator. When necessary to deprive the air of part of the aqueous vapour (damp) the sponge must be placed in the vacant chamber under the box, and should the wind blow very strong and cold, direct on the mouth of the Ventilator, the piece of flannel must be placed over the top of the box. At other times it hangs down useless. Unless the air be over wet, the sponge should not be used. As stated above the box as well as the whole of the Ventilator, should be dusted occasionally.

When the Ventilators are used for Railroad Cars, they must be in the cars. Their size will depend upon that of the car, and they can be placed in the car in such places as may be deemed best by the builder; only that care must be taken that the tubes for the escape of foul air generated in the cars, *must be below* the Ventilator, otherwise the fresh air as well as the foul air, would pass through, and the object intended to be gained would be lost. By this plan the fresh air will displace the foul air and force it out through the escapes.

The sponge should be always in use in railroad carriages. Every builder of a car may arrange these Ventilators to suit his own taste; but the principle laid down must be adhered to.

ADVANTAGES.

In conclusion, I have no hesitation in stating that I find from experience, that the Ventilator placed in any house according to the direc-

tions giver, will supply the building with fresh pure air, without producing any sensible draught, and as the same principle is applied in the adaption of it to Rail Road cars, if it is used in the manner pointed out the car will be also thoroughly ventilated without perceptible currents of air.

HENRY HOWARD, M. D., M. R. C. S. L.

ST. JOHNS, JULY 1869.

PART SECOND.

TESTIMONIALS.

EXTRACT FROM A REPORT OF A SPECIAL COMMITTEE ON THE
MERITS OF A SUPPOSED METHOD OF

SUPPLYING PURE AIR

To Schools, Churches, Hospitals, Asylums, Dwellings, and all occupied Houses. Also, Railroad Cars and Passenger Vessels.

PRESENTED AT THE REGULAR MEETING OF THE "NEW YORK ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE AND ART," AT COOPER INSTITUTE,
AND UNANIMOUSLY ADOPTED MARCH 8TH, 1869.

NEW YORK, 8th March, 1869.

To the ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE AND ART.

The undersigned Committee, appointed at the last meeting of this Association to prepare a report on the Ventilator then exhibited, have given the subject a careful and minute consideration, and hereby present our views thereupon.

With regard to the importance of removing from occupied apartments the foul gases which are universally and continually generated by respiration, perspiration, and various other vital functions, also by the combustion of gas, oil, and fuel, there is a very general conviction thereof, and several methods have been suggested, and are in practice for said purpose; but another equally important consideration has very recently received appropriate attention, viz.: *the supply of an ample amount of pure air.* It is a well understood philosophical fact that the removal of the air of any room is impracticable without the supply of an equivalent amount from without, and as this latter idea is very rarely practical, because of the general apprehension of danger derivable from currents of air, it is very seldom that a consistently and thoroughly ventilated building; either public or private, or any railroad car, or passenger vessel, is ever seen.

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Another circumstance which frequently prohibits the supply of air from without, into occupied apartments, is the impurity of the general atmosphere in large cities, and some other localities where foul gases are produced by various manufactures, and deficient drainage and sewerage, also the emanation of disease-producing influences from the soil and vegetations of many rural localities. Of the latter sources of sickness there are some almost universally understood, for example, the sources of intermittent, typhus, and yellow fevers, rheumatism, catarrhs, consumption, and various others derived from impurities of the blood, caused by the inhalation of foul air.

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One of the most copious sources of disease, particularly in crowded cities, as we have for many years noticed especially in the city of New York, is the prevalence of *dust*, of both vegetable and mineral composition, derived from the filth of the streets, and from the numerous discreditable practices of both private and official individuals. The breezes raise immense clouds of it into the atmosphere, and drive them into the buildings, whereby all individuals, both outdoors and indoors, inhale the dust to a considerable extent, thus causing very numerous cases of physical disease.

occupied

To this subject neither our civic nor sanitary authorities appear to have given any attention, although by them, especially by the Board of Health, the evil might be almost entirely suppressed.

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Heretofore we have had no means whereby either the dust, the poisonous gasses, or the moisture of the outer atmosphere could be prevented from entering the doors or windows, the opening of which are the only means of supplying the interior of the house with fresh air. But we have now the pleasure of being able to say that the apparatus upon which we have been requested to report, is very clearly a happy arrangement for the purification of the atmosphere before entering into houses.

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Its mechanical and chemical arrangement present a very good assurance that its application to dwellings, churches, hospitals, schools, railroad cars, and all other occupied premises, will supply the inmates thereof with nothing but *pure air*, and thus avoid the very numerous atmospheric causes of disease, provided the internal sources thereof are removed by appropriate ventilation, which this arrangement will greatly facilitate.

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The mechanical arrangement of the apparatus causes a very free distribution of the air in the room to which it is attached, by dividing the current into a very great number of singularly minute streams, thereby totally obviating the objection against *currents of air*, but at the same time supplying the amount necessary for any number of persons, provided the room is sufficiently furnished with the apparatus. One of its physical arrangements also causes the absorption of the moisture of the atmosphere, thereby preventing its entrance into the rooms. Also, as one branch of its structure is within the room, the coldness of the outer air may be reduced before entering:

The impure gases very frequently generated outside of houses are also arrested in the passage of the air through the apparatus, by being brought in contact with appropriate chemical materials, which absorb the gases, thus hap-

pily preventing their foul influences. The most common sources of sickness of this nature being *carbonic acid gas*, and *sulphuretted hydrogen gas*, the latter, derived partly from gas manufactories, may both be absorbed by the chemical contents of the apparatus; and what is equally important as a sanitary regulation, no dust or other organized matter can pass through it, though the existence thereof in large cities might be almost wholly prevented by proper restrictions enforced by the sanitary authorities.

The enormous existence of this organic poison in the outer air causes its entrance into every house, thereby covering the furniture and clothing of the inhabitants, and also mingling with the articles of food, besides its inhalation into the lungs.

Almost every store and market make a display thereof on their saleable articles, and it may also be frequently noticed in our Croton Water, probably being derived chiefly from its absorption in the Reservoirs. If the existence of this nuisance is not entirely suppressed by the appropriate authorities, as it might be, the owner of every house and every railroad car should prevent its introduction therein by such an efficient and simple means as the subject of this report.

Your Committee deem it likewise appropriate to refer to another well-established anti-hygienic circumstance, viz: that Cholera is carried into the air by means of organized matter, and that such is also the case with many eruptive diseases, especially Small Pox, Scarlet Fever, and Measles, the emanation from the surface skin in these cases being carried through the air, and hence become the sources of the spread of all these dangerous complaints.

The apparatus referred to is believed would be found a protection of dwellings against the malarious sources from the outside.

Your Committee, after careful examination and mature deliberation, are convinced that this new Ventilator will perform all that the inventor proposes it should do, and we hail with great satisfaction this addition to science and art, considering that it will be found one of the best means for the preservation of health, and its restoration to diseased bodies, especially in hospitals.

Having thus become perfectly convinced of the value of this very happy arrangement of mechanical and chemical means for the purification of the chief source of vitality for every animal creature, and also for the avoidance of the very numerous sources of disease derived from the decomposition of many natural substances, and also from erroneous habits of large numbers of the human race, your committee deem it appropriate to urge upon the proprietors of all occupied premises, especially the managers of schools, churches, hospitals, asylums, prisons, tenement houses, public vehicles of every description, and all passenger vessels, the application of this apparatus thereto, thereby assisting in the preservation of health, the cultivation of both mental and physical strength, and prolongation of human lives.

Respectfully submitted,

JOHN H. GRISCOM, M. D.

JOHN ALLEN, D. D. S.

JOHN JOHNSON.

EXTRACT FROM THE MINUTES OF A MEETING OF THE POLYTECH-
ENIC ASSOCIATION OF AMERICAN INSTITUTE, HELD AT THEIR
ROOMS NEW YORK, 15TH APRIL 1869.

Dr. Dubois D. Parmalee in the chair. At the meeting this new Ventilator was exhibited and its construction and utility explained.

Mr. J. Disturnell said that this apparatus had been presented to another scientific society in this city, and they had appointed a committee to examine it, who made a very extended and favorable report on it. In his opinion the influence which caused consumption would in a great measure be absorbed by this apparatus. In preventing diseases that are climatic, this invention is very valuable.

Dr. Edwards remarked that the Ventilator had been recommended to the Board of Health as a means of preventing disease, but unless ample means were provided for the egress of the foul air, the instrument would fail. What consumption people want is air, pure natural air, not artificially made.

The patients at the Brompton Hospital, where the air is warmed, died very well while they remained there, but when taken back to the cold air they died. But now we send consumptive people to the clear bracing air of Nebraska, and they come back well and remain so. The screens through which the air has to pass in this Ventilator acts on the principle of the Respirator described at a recent meeting. The force of the entering air can be regulated by the number of screens. To call this a Ventilator seems to be a very imperfect definition of it, as it effects many other objects as well. Its adoption by the Board of Health is a very desirable matter.

The Chairman remarked it was not only a Ventilator, but a filterer of the air as well.

Mr. J. A. Whitney remarked that in cities and on the banks of streams this system of Ventilation would be very requisite.

Mr. J. R. Fisher said that it was a barbarism to have dust in the streets, but while we have it there must be something done to mitigate the evil, and that can be done by straining the air. This invention is valuable to those who have not the means of paying for luxuries.

OPINION OF DR. SMALLWOOD, PROFESSOR OF METEOROLOGY,
MCGILL COLLEGE, MONTREAL.

"I have carefully examined Dr. Henry Howard's Patent Ventilator, having placed one for that purpose in a suitable position, and having submitted it for a considerable time to various experiments, with the aid of the Thermometer, Hygrometer, and Ozonometer, and having thoroughly tested it, am of opinion that it is a most perfect Ventilator, peculiarly adapted for the admission of *pure air* into any place; freed, by its peculiar construction, from deleterious gases, and from too abundant amount of moisture. It is also furnished with the means of regulating the amount of air admitted.

"For the sick room, hospitals, railroad cars, and for private dwellings,

where the admission of pure air is so important, the Ventilator will be found an object of great value; and, I feel assured that so soon as it is more generally known, it will be universally adopted.

"CHARLES SMALLWOOD, M. D., L. L. D., D. C. L.,
"Professor of Meteorology in the University of
"McGill College, Montreal.

"Montreal, Dec. 20, 1868."

PROF. JOSEPH HENRY, OF THE SMITHSONIAN INSTITUTE, WASHINGTON CITY,

One of the very highest authorities on the subject of Ventilation, states in a paper that he has examined this "Ventilator, and is favorably impressed with "the importance of the invention, and is convinced that it may be employed "with good results, particularly in sleeping rooms and in houses situated in "malarious districts." He authorises the publication of his approval of it.

THE BOARD OF INSPECTORS OF PRISONS AND ASYLUMS, FOR THE PROVINCE OF QUEBEC,

In their Report for 1868 speak as follows of this Ventilator:

V E N T I L A T I O N .

(TRANSLATED FROM THE FRENCH.)

"All the prisons, except that of Quebec, are, more or less, deprived of this powerful agent in the preservation of health.

"This subject, so important in a sanitary point of view, has not received the attention which it merits, from the architects of this country.

"Formerly very little attention was paid to ventilation in public buildings, houses of education, hospitals, jails, &c.

"For some years past, however, many men of science have given the subject serious thought, and in this respect, as in many others, have made numerous researches.

"Every one, now-a-days, is convinced that ventilation ought never to be lost sight of in the construction of buildings intended for the accommodation of large numbers.

"To satisfy this requirement many systems, answering more or less the end in view, have been put on trial.

"Of these systems, there are some whose application is difficult and expensive; others are remarkably simple,—which does not prevent them from being every way suitable.

"During our visit to the St. Johns Asylum, we had occasion to examine a very simple apparatus, the invention of the able Superintendent, by means of which ventilation works admirably. This apparatus, which costs little, consists of a little box of tin, the interior of which is peculiarly made, is fixed in a window. The outer air is introduced transversely into the apartment, at the

same time, getting rid of damp and all alien substance; so that it is circulated without sensible impression on the inmates. By this means, twenty-six thousand four hundred feet may be introduced hourly, enough for twelve persons in health and for six hospital patients. If one of these apparatus is not sufficient, it is easy to use as many as may be required.

"As far as our knowledge tends, we believe that this discovery is very useful, and that the apparatus ought to be used wherever ventilation is required. And, certainly, it is required in Prisons, Asylums, Hospitals, Educational Establishments, &c."

Dr. L. L. C. Desaulniers President, of the same Board, makes the following statement in the Book of the Asylum.

"The apartments are to-day (June 2nd) notwithstanding the great heat, free from any unpleasant smell. This is, without doubt, owing to the good system of ventilation which has been introduced into the establishment—the invention of the zealous superintendent."

EXTRACT FROM REPORT OF J. M. FERRES, ESQ., LATE INSPECTOR OF PRISONS AND ASYLUMS FOR CANADA.

"The Asylum is kept in an admirable state of cleanliness. Were it not it would be impossible for Dr. Howard to maintain it as free from sickness as it is. He continues to devise expedients for improving the ventilation so that almost as soon as foul air is generated it is expelled."

BOARD OF HEALTH, NEW YORK CITY.

This "Ventilator" was tested in one of the rooms in the Metropolitan Board of Health building, New York City, and was highly approved of both by the Superintendent of the Board, and the different gentlemen forming the Sanitary Commission.

THE PRESS.

The merits of this method of Ventilation have already been very fully discussed by several of the leading newspapers of the United States and Canada, during the past year, and in all cases it has been recommended as the best means known for the introduction of pure air in public and private buildings.